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Patentanmeldung Nr. Patent application No. Demande de brevet n°

03257941.9

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk



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Anmelder/Applicant(s)/Demandeur(s):

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Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

Reclosable metal container

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The application was transferred from the above mentioned original applicant to:
CROWN Packaging Technology, Inc - Alsip, United States of America
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W0290

RECLOSABLE METAL CONTAINER

This invention relates to a reclosable metal container such as a can of steel or aluminium. In particular, but not exclusively, it relates to a bottle-shaped can for packaging beverages.

5 So-called "bottle cans" have been proposed in patent applications such as JP-A-2003165539, for example, in which a container body is closed at one end by a can end seamed to the body to form a base, and at the opposite end is necked inwardly to form a shoulder. A portion of
10 the can body extends away from the free edge of the shoulder into a cylindrical portion which is threaded so as to be closed by a screw closure.

 Alternative proposals for bottle cans use plastic collets to provide a thread for reclosing the can instead
15 of threading the metal neck.

 Whilst these current proposals are workable in theory, there are, in practice, a number of practical problems. Necking of the container body sufficiently to provide a neck finish for reclosing may involve up to 56
20 necking stages. Because of its material properties, this is not usually possible if the container is made of steel of conventional thickness (for example 0.08 mm). In order to withstand necking forces, the steel would need to be thicker than is conventional and therefore less economic
25 to use. Furthermore, less metal exposure is acceptable with steel than with aluminium.

 non-standard sizes of can bodies may need to be used since a standard 355 ml capacity can with a plastic screw threaded neck would be too tall for manufacturing lines.

This invention seeks to overcome these problems and to provide a bottle can which enables standard tooling to be used, irrespective of the desired neck finish.

According to the present invention, there is
5 provided a reclosable container comprising a metal can body having a base and a side wall, a metal neck component seamed to a free end of the can body, the neck component comprising a generally frustoconical shoulder portion and a cylindrical portion, the container further
10 comprising a sleeve of plastics material which fits over the metal neck component and covers the seam between the neck component and can body.

It should be noted that the term "generally frustoconical" is intended herein to mean both a precise
15 frustoconical shape and shapes which reduce the cross-sectional area of the container such as a stepped shoulder portion.

Preferably, the sleeve extends over the cylindrical portion of the neck component and is threaded to allow
20 reclosability of the container. Alternatively, the cylindrical portion of the neck component may be threaded and the sleeve covers only the seam. In this embodiment, the sleeve may extend as far as the threaded portion of the neck component, as desired.

25 The can body is typically a standard beverage can body which can be mass-produced using regular beverage can manufacturing lines. Different neck finishes can be offered by a range of neck components and plastic sleeves. The can body may be made from steel or aluminium
30 of thin gauges such as 0.1 mm for aluminium, 0.08 mm for

steel. The neck component may be of thicker material and provides barrier properties to prevent, for example, passage of gas which may affect the product in the container.

5 According to a preferred aspect of the invention, the sleeve includes a detent for fixing the sleeve onto the seam. This detent provides a seal to prevent water ingress. Ideally the open end of the sleeve may be retained by a curl on the neck component. Generally the
10 can body has a small necked-in region at the end to which the neck component is seamed. The sleeve may extend over this region on the can body so as to fit against the can body side wall and resist water ingress.

 The sleeve may be profiled so as to correspond to
15 the shoulder shape on a conventional plastic bottle. In this embodiment the neck component includes a support region between the frustoconical and cylindrical portions. This support region may be a second cylindrical portion of larger diameter than the first cylindrical
20 portion such that the first cylindrical portion supports the threaded part of the plastic sleeve and the second portion supports a part of the sleeve which is profiled to a shoulder shape.

 In an alternative embodiment, the neck component may
25 include threads for closing the container and the sleeve may cover the seam and, optionally, the non-threaded part of the neck component.

 Preferred embodiments of the invention will now be described, by way of example only, with reference to the
30 drawings, in which:

Figure 1 is a schematic side section of a first embodiment of container according to the invention;

Figure 2 is an enlarged side section of the shoulder and neck region of the container of figure 1; and

5 Figure 3 is perspective view of a second embodiment of container according to the invention.

Figure 1 shows a container comprising a can body 1, neck component 10 and sleeve 20. The can is a typical beverage can body comprising a side wall 2, necked at its upper end 3, and an integral domed base 4. The can body is made of sheet metal, typically steel or aluminium in the range of 0.25 mm to 0.35 mm thick with walls reduced in thickness during manufacture.

Neck component 10 comprises a metal support having a generally frustoconical part 11 and a cylindrical portion 12. As best shown in figure 2, a second cylindrical portion 13 is joined to the first cylindrical portion by a shoulder 14. The neck component terminates in a flange or, ideally, curl 15 at its upper end which holds the plastic sleeve 20 in position. The sleeve thus also hides the cut edge of the neck component. At its lower end the neck component is fixed by a double seam 16 to the can body 1.

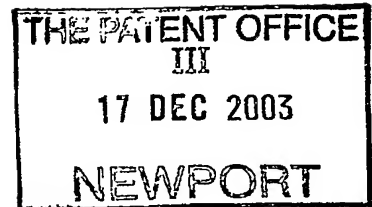
If the container is closed by a plastics closure having a bore seal, the bore seal will impart further cut edge protection. In this instance the cut edge of curl 15 would be trapped between the sleeve 20 and the bore seal of the closure.

The sleeve 20 has a curved sheath 23 with a hook-shaped detent 21 which clips onto the seam 16. Annulus 22

provides further location of the sleeve over the seam.
The sleeve of figures 1 and 2 is thus fixed in position
by the detent 21 and neck component flange 15. In this
embodiment, the sleeve 20 has a cylindrical upper portion
5 24 which is threaded 25. Below thread 25 the upper
portion includes a neck support ring 26 for handling
purposes.

For aesthetic reasons the sleeve may be shaped so as
to blend into the side wall of the can body. The sleeve
10 may be made of thin plastics so that extra support for
the curved shape is provided by shoulder 14 of the neck
component.

In the alternative embodiment of figure 3, the metal
neck component 10' includes threads 17 on cylindrical
15 part 12'. In this embodiment sleeve 20' terminates
adjacent the threads, and closure 30 and the upper
portion 24' of the sleeve 20' have the same outer
diameters.



CLAIMS:-

1. A reclosable container comprising:
a metal can body (1) having a base (4) and a side
5 wall (2),
a metal neck component (10) seamed to a free end of
the can body, the neck component comprising a generally
frustoconical shoulder portion (11) and a cylindrical
portion (12), and
10 a sleeve (20) of plastics material which fits over
the metal neck component (10) and covers the seam (16)
between the neck component (10) and can body (1).
2. A container according to claim 1, in which the
15 sleeve (20) extends over the cylindrical portion (12) of
the neck component (10) and is threaded (25) to allow
reclosability of the container.
3. A container according to claim 1, in which, the
20 cylindrical portion (12) of the neck component is
threaded and the sleeve (20) covers only the seam (16).
4. A container according to claim 3, in which the
sleeve (20) extends as far as the threaded portion of the
25 neck component.
5. A container according to any one of claims 1 to 4,
in which the sleeve (20) includes a detent (21) for
fixing the sleeve onto the seam (16).

6. A container according to any one of claims 1 to 5, in which the neck component (10) includes a support region (14) between the frustoconical and cylindrical portions.

ABSTRACT

RECLOSABLE METAL CONTAINER

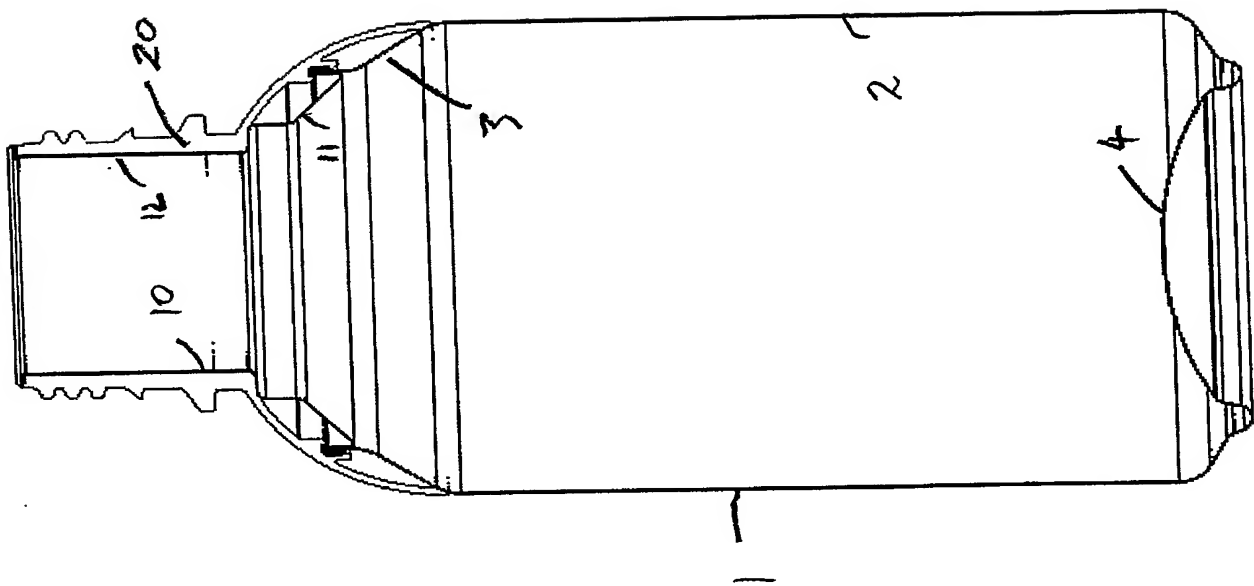
5 A reclosable metal container in the style of a
bottle-shaped can has a conventional can body of steel or
aluminium to which a metal neck component is seamed. A
sleeve of plastics fits over the neck component and a
detent inside the sleeve clips it onto the seam. The
10 upper edge of the sleeve is fixed in place by a curl on
the upper edge of the neck component.

By using a separate neck component and hiding the
seam under a sleeve, conventional sizes and material
gauges can be used for the can body. Thicker material may
15 be used for the neck component in order to withstand
necking forces. Threads for closing the container may be
provided either on the sleeve or, in an embodiment where
the sleeve is simply used to cover the seam, on a
cylindrical part of the neck component itself.

20

(Fig. 1)

Figure 1



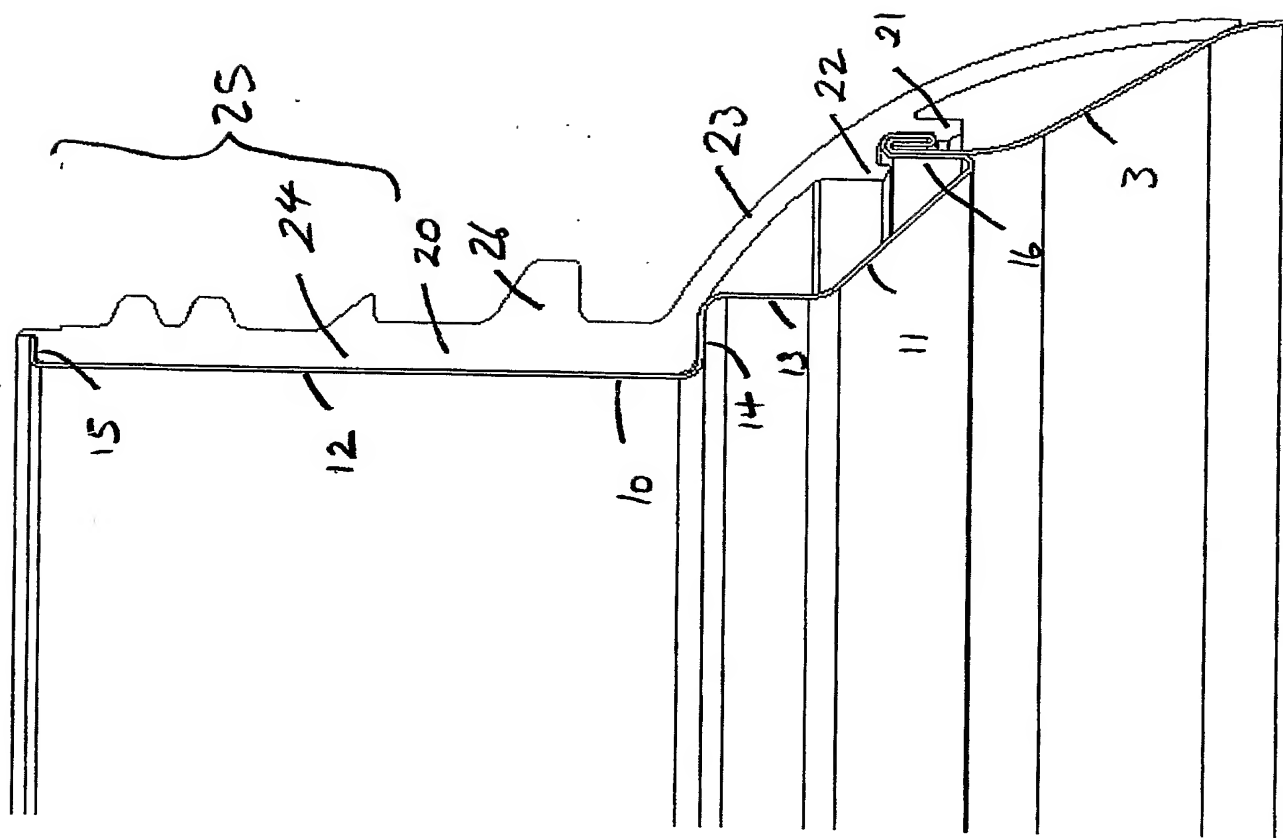


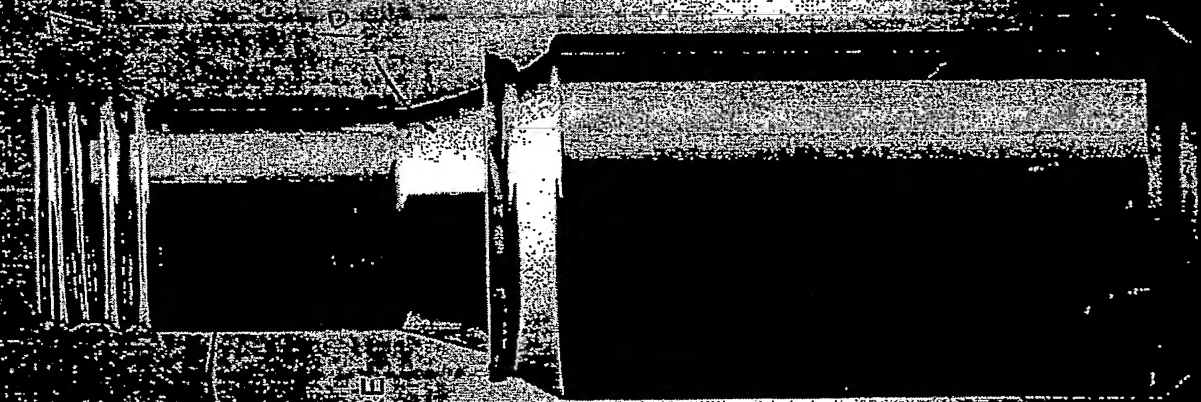
Figure 2

Figure 3

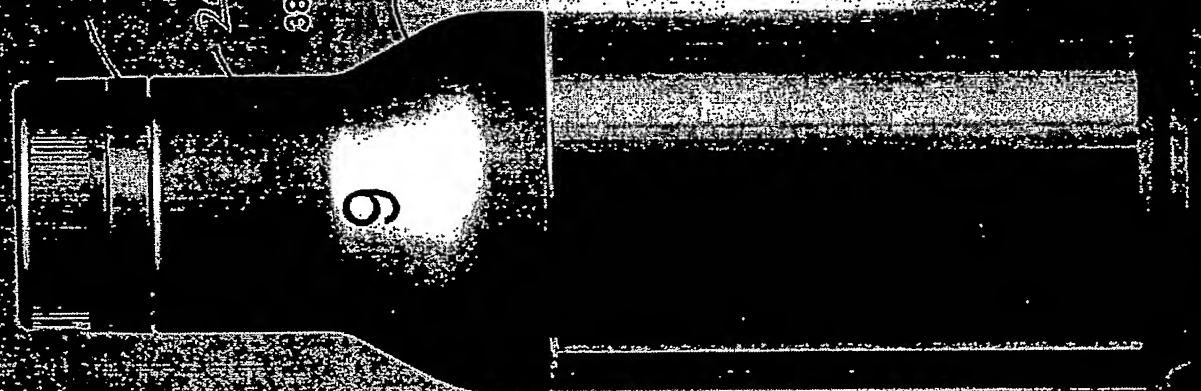


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IMAGE No. 02281



207.5/204.330ml
38mm SCREW CLOSURE
WITHOUT OVERCAP



207.5/204.330ml
38mm SCREW CLOSURE
PLASTIC OVERCAP

